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The Effects of a Proposed No-Fault Plan on the Costs of Auto Insurance in California: An Updated Analysis

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The Alliance to Revitalize California, a private, non-profit organization, has proposed a no-fault automobile insurance plan for California (Coalition for Common Sense, November 1994). The California Department of Insurance asked the Institute for Civil Justice to analyze the effects of the proposed plan on automobile insurance costs in California. We used a database we had developed in the course of a previous study to estimate the effects of the proposal and published our findings last March.¹

The database we used in that study described the compensation provided a random sample of California auto accident victims in 1987. Recently we obtained comparable data for a random sample of Californians who were compensated for auto accident injuries in 1992. Using these more recent data, we replicated our

earlier analysis.² Our analysis of the 1992 data suggests that the proposed plan would result in substantial savings on insurance costs. In brief, we find that the proposed plan would reduce the costs of compensating auto accident victims for personal injuries by 21 to 54 percent compared to California's current auto insurance system. If the premium an insurer charges for a policy varies in proportion to the compensation costs it can expect to incur on behalf of the policyholder, the plan would result in a reduction of 11 to 29 percent in the average California driver's auto insurance premiums.³

Our discussion has five parts: (1) a description of the Alliance's proposal, (2) a summary of our results,

¹See Carroll and Abrahamse (1995).

²Abrahamse and Carroll (1995) provides a detailed description of the methods we used to analyze the effects of the Alliance's proposal.

³Our earlier study reported somewhat greater savings. Our analysis of the 1987 database suggested that the proposed plan would reduce compensation costs 48 to 65 percent, translating into a 25 to 34 percent reduction in premiums.

(3) an assessment of how uncertainty affects our estimates, (4) a discussion of the differences between the estimates presented here and those we reported earlier, and (5) a description of our data and methods.

THE CURRENT AUTO INSURANCE SYSTEM

The traditional rules of the tort system govern recovery for auto accident injuries in California. An injured party may seek compensation for all economic and noneconomic losses from the driver who caused the accident.⁴ However, the accident victim is entitled to compensation only to the degree that the other driver is responsible for the accident. A driver's bodily injury (BI) insurance pays the compensation he owes someone he injures, up to the policy's limits. Uninsured motorist (UM) insurance pays the policyholder any compensation he cannot obtain from an uninsured motorist, up to policy limits.

THE PROPOSED AUTO INSURANCE PLAN

The Alliance's proposal establishes a pure no-fault auto insurance system for personal injuries resulting from auto accidents. It eliminates tort liability for auto accident personal injuries.⁵ In return for this barrier to liability claims, the plan establishes first-party, no-fault insurance, called Personal Injury Protection (PIP), which covers all of an accident victim's economic losses up to policy limits. Under a "minimum limits" option, motorists would be required to carry \$50,000 of PIP coverage. Under a "standard limits" option, mandatory PIP coverage would be \$1 million. Accident victims' compensation would be limited to the PIP coverage.⁶ They

⁴ Economic losses include an accident victim's medical costs, lost wages, burial expenses, replacement service losses, and other pecuniary expenditures. Noneconomic losses include physical and emotional pain, physical impairment, mental anguish, disfigurement, loss of enjoyment, and other nonpecuniary losses.

⁵ Under the proposal, there would be no restriction on the injured's rights to recovery under tort when the injury was caused by a tortfeasor's alcohol or drug abuse. Because of data and resource limitations, we do not consider that provision in this analysis. In any event, the provision would have little effect on our estimates. Alcohol is not involved in the accidents that account for the overwhelming majority of auto injuries and costs. For example, only 4 percent of all the people injured in auto accidents in 1992 were injured in alcohol-involved accidents. See Insurance Research Council (1994), Table A11.

⁶ The proposal requires insurers to offer supplemental PIP insurance that would pay up to \$250,000 for pain and suffering resulting from a serious injury. The amount of payment in any given case would be determined by a schedule established by the Insurance Commissioner. Because we lack information on the injuries included under this provision, the benefits payable for any of those injuries, and the fraction of drivers who might purchase such a policy, we do not consider that provision in this analysis. Because the supplemental

could not seek compensation from another driver, even if the PIP limit was not sufficient to cover all of their economic losses.

The Alliance's proposal would reduce insurers' costs in two respects: They would not compensate accident victims for noneconomic losses, and they would not incur the transaction costs—claim processing and legal costs—associated with resolving liability claims. In earlier work, we estimated that about 56 percent of the compensation paid by auto insurers to accident victims in California was for noneconomic loss (Carroll et al., 1991, Table G.3.2), while transaction costs accounted for about 17 percent of the total costs insurers incurred in compensating auto accident victims (Carroll et al., 1991, Table G.1.2).

The proposal would also increase costs by providing full compensation for economic loss to all insured accident victims. We estimated earlier that about 19 percent of California auto accident victims receive less than full compensation for their economic losses (Carroll et al., 1991, Table G.6.2).

The Alliance asserts that savings will outweigh the increased costs, allowing reductions in insurance premiums while ensuring full compensation for economic loss to all insured accident victims. This analysis tests that claim.

RESULTS

The Alliance's proposal would not affect current auto insurance covering property damages. Accordingly, we focus on the effects of the proposed plan on the costs of auto insurance for personal injuries.

Our data are a random sample of California auto-accident injury claims closed with payment during 1992. We assume that the distributions of accidents, injuries, and losses observed in that sample are representative of the corresponding distributions in the state. We compare the amount insurers would have to charge the average policyholder to recover exactly what they paid out in compensating the sample victims under the current system to what they would have to charge the average policyholder to recover compensation for the same victims, for the same injuries and losses, under the proposal.

coverage is optional and would presumably be self-financing, its availability would not affect the savings that accrue to drivers who decline it.

We estimate that the proposed plan with a \$50,000 PIP limit would reduce the costs of compensating auto accident victims for personal injuries by about 54 percent. This includes savings on both the compensation paid to accident victims and the transaction costs incurred in providing that compensation. If the PIP limit were \$1,000,000, the cost reduction would be about 21 percent.

What these cost savings would mean for California drivers depends on the coverages they purchase and the relationship between the costs insurers incur on behalf of those they insure and the premiums they charge. In 1993, the most recent year for which data are available, California drivers spent about \$3.8 billion for collision and comprehensive insurance and about \$7.2 billion for personal injury and property damage liability coverages combined (National Association of Insurance Commissioners, 1995, Table 7 [a]). We estimate that the latter includes about \$5.8 billion for personal injury coverages and about \$1.4 billion for property damage liability.⁷ If the premium an insurer charges for a policy varies in proportion to the compensation costs the insurer can expect to incur on behalf of the policyholder, the 54-percent savings on personal injury coverages under the \$50,000 PIP version of the plan would result in a 29-percent reduction in the average California driver's auto insurance premiums.⁸ Under this assumption, the average California driver's insurance premiums would be reduced 11 percent under the \$1,000,000 PIP version of the plan.⁹

The affordability of auto insurance is a particular concern to low-income drivers.¹⁰ Our data do not allow us to directly estimate the effects of the plan on low-income drivers. However, we can estimate its relative effects on drivers who purchase only the coverages required by law—BI and property damage liability under the present system and PIP and property damage liability under the proposed no-fault plan. Under the \$50,000 PIP version of the plan, drivers who purchase

only required coverages would save about 44 percent of what they have to pay for the personal injury and property damage liability coverages mandated by current law.¹¹ Under the \$1,000,000 PIP version of the plan, drivers purchasing only required coverages would save about 17 percent of the cost of liability coverages mandated by current law.¹²

Note that we estimate the likely effects of the Alliance's proposal relative to the current liability system. When we estimate that the costs of personal injury coverages will be 54 percent lower under the proposal for the \$50,000 PIP option, we do not mean that the injury coverage costs of the auto compensation system will fall 54 percent if the proposal is adopted. Rather, we mean that if the proposal is adopted, these costs will be 54 percent smaller than they would be if the current system were retained.

ASSESSING THE EFFECTS OF UNCERTAINTY

There are several sources of uncertainty in these estimates:

1. The cost elements were obtained from a sample of closed claims. Thus they are subject to sampling error. However, our sample was quite large (about 6,000 cases); in our judgment, sampling error is likely small.
2. Any sample of auto injury claims will tend to include many small value claims and a few rather large ones, leaving open the possibility that results might be sensitive to a small number of unusually large claims.
3. Savings in any future year depend on the fraction of the California driving population that would have purchased insurance under the present system in that year.
4. Savings also depend on the fraction of the uninsured driving population that would decide to purchase insurance under the proposal in any future year.
5. Savings depend somewhat on the fraction of auto accident victims who are injured in single-car accidents.

⁷National Association of Independent Insurers (1994) data show that insurers' compensation costs for all personal injury coverages combined accounted for about 81 percent of their total compensation costs for personal injury and property damage liability coverages. We assume the distribution of premiums between personal injury coverages and property damage liability is the same as the corresponding distribution of costs.

⁸ $0.54 \times \$5.8$ billion in savings on personal injury coverages divided by \$11 billion in total premiums under the present system.

⁹ $0.21 \times \$5.8$ billion in savings on personal injury coverages divided by \$11 billion in total premiums under the present system.

¹⁰Some estimates suggest that these groups are now spending as much as 30 percent of their total annual incomes on automobile insurance (Maril, p. 11).

¹¹ $0.54 \times \$5.8$ billion in savings on personal injury coverages divided by \$7.2 billion in premiums for mandated coverages under the present system.

¹² $0.21 \times \$5.8$ billion in savings on personal injury coverages divided by \$7.2 billion in premiums for mandated coverages under the present system.

To assess how these uncertainties might affect our estimates, we recalculated them under many different assumptions (Table 1).

Table 1
Assumptions

	Low (%)	Nominal (%)	High (%)
Uninsured under current system	20	30	40
Uninsured who purchase insurance under proposed system	0	20	40
Fraction injured in single-car accidents	0	10	20

1. We used all the cases in our sample to make nominal (midpoint) estimates of the compensation elements. We dropped the 10 percent of all cases with the greatest economic loss to obtain a second set of estimates, then we doubled the economic loss of those in the top 10 percent of all cases to obtain a third set of estimates. It is unlikely that the effect of sampling error in a file of 6,000 cases would be as great as the effect of discarding or doubling the top 10 percent of the sample.
2. We assumed that 30 percent of all drivers in California are uninsured under the current system. We recalculated our results assuming that either only 20 percent, or as many as 40 percent, are uninsured.
3. We assumed that 20 percent of all drivers who are currently uninsured would purchase insurance under the proposal. We recalculated our results assuming that either no uninsured driver, or as many as 40 percent, would do so.
4. We assumed that 10 percent of all accidents involve a single car. We recalculated our results assuming that either no accidents, or as many as 20 percent of all accidents, involved a single car.

In all, we used three different estimates of cost elements, fraction of drivers insured under the current system, percentage of uninsured drivers who will purchase insurance under the proposed plan, and percentage of people injured in single-car accidents. Taking all possible combinations, we made 81 different estimates. We summarize these calculations in Table 2.

Table 2
Range of Estimated Savings

PIP Limit	Estimation Sample	At Least (%)	Nominal (%)	At Most (%)
\$50K	Average of all cases	46	54	60
	Remove top 10%	48	56	62
	Double top 10%	45	53	59
\$1M	Average of all cases	7	21	31
	Remove top 10%	48	56	62
	Double top 10%	-8	7	20

As the table shows, under a \$50,000 PIP limit the Alliance's proposal will reduce the costs of compensating personal injuries about 54 percent. Under the most extreme assumptions, this estimate ranges from 45 percent to 62 percent. Under a \$1 million PIP limit, cost reduction is about 21 percent, with a range from -8 percent to 62 percent.

Our estimates for the \$50,000 PIP limit are insensitive to the distribution of cases in the sample: When we either drop or double the largest 10 percent of the cases in the sample, our estimates are very similar to our estimates using the entire sample.

However, our estimates for a \$1,000,000 PIP limit are roughly 25 percentage points greater when we drop the largest 10 percent of the cases in the sample, compared to the corresponding estimates based on the entire sample. This means that if our data file contains an uncharacteristically large number of high-value cases, our nominal estimate, based on all cases, underestimates the relative savings under no-fault with a \$1 million PIP limit. Conversely, if our data file contains an uncharacteristically small number of high-value cases, our nominal estimate, based on all cases, overestimates the relative savings under no-fault with a \$1 million PIP limit by about 14 percentage points.

An additional source of uncertainty in these estimates is the effects of claiming behavior. We have found evidence of extensive excess claiming for medical costs in auto personal injury cases across the United States, and particularly in California.¹³ California's current system encourages excess claiming as a means for leveraging larger settlements from auto insurers; the Alliance's proposal would eliminate the incentive for excess claims. To the extent that claimed economic losses reflect excess medical claims in response to the

¹³See Carroll, Abrahamse, and Vaiana (1995).

current system, adoption of the proposal might result in greater savings than those reported here.

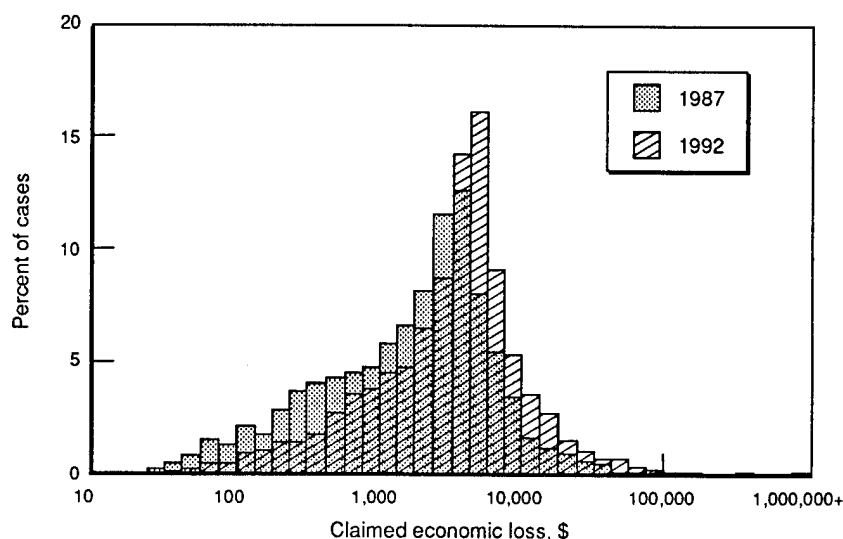
WHY THE 1992 RESULTS DIFFER FROM THE 1987 RESULTS

Under California's current system, automobile insurance compensates an accident victim for both economic and noneconomic losses, up to the limits on the applicable insurance policy. People who incur substantial losses as a result of auto accident injuries often receive less than full compensation from auto insurance for those losses because the losses exceed policy limits.

Under the Alliance's proposal, an accident victim would be compensated only for economic loss, but many of those whose compensation would formerly have been capped by policy limits would be more fully compensated, at greater expense to the insurance system, under the Alliance's proposal. Thus the proposal "saves" money, relative to the current system, with respect to any victim who would have been compensated for noneconomic loss because it wouldn't provide him or her that compensation. It "loses" money relative to the current system with respect to any victim who would not have been fully compensated for economic loss because it provides him or her full compensation for economic loss, to the policy limit.

Claimed economic losses have increased since 1987. The accident victims in our 1992 database claimed economic losses that were much greater, on average, than the losses claimed by the accident victims in our 1992 database.¹⁴ The figure shows the distributions of claimed economic losses in each of those years.

But drivers have generally not increased their policy limits to keep pace with the rate of growth in claimed losses. As a greater fraction of 1992 accident victims' economic loss claims neared



Distribution of Claimed Economic Loss, California, 1987 and 1992

insurance policy limits, compensation from auto insurance grew at a slower rate than did economic loss claims.¹⁵

Consequently, our updated estimate of the costs of compensating auto accident victims under the proposal are greater and, hence, our updated estimates of the proposal's savings, lower, than were our original estimates.

Table 3 illustrates this shift by considering how hypothetical victims would be compensated under the current system and under the \$50,000 PIP version of the proposed plan.

Table 3
*Compensation Under the Current and Proposed Plans:
Hypothetical Examples (\$000s)*

Victim	Current System		Proposed Plan		"Savings"
	Economic Loss	BI Policy Limit	Compensation	Compensation	
A	2	15	6	2	4
B	10	15	15	10	5
C	25	15	15	25	-10
D	250	15	15	50	-35

The \$50,000 PIP version of the proposal "saves" on victims A and B and "loses" on victims C and D. Between 1987 and 1992, the distribution of accident

¹⁴In 1987, accident victims claimed an average of \$5,433 (in 1987 dollars) in economic losses. In 1992, accident victims claimed an average of \$10,286 (in 1992 dollars) in economic losses.

¹⁵The ratio of auto insurance compensation to economic loss fell from 1.04, in 1987, to 0.88, in 1992.

victims shifted so that relatively fewer are like A or B and relatively more are like C or D.

The reader can easily imagine what the above table would look like for a victim "lucky" enough to have been injured by a driver with a policy limit above \$15,000.¹⁶ The patterns are the same and the shift toward type C or type D victims has exactly the same kinds of effects on the proposal's savings relative to the current system.

DATA AND METHODS

We obtained data from closed claim surveys conducted by the Insurance Research Council.¹⁷ These surveys obtained detailed information on a national random sample of auto-accident injury claims closed with payment during 1992 under the principal auto-injury coverages.¹⁸ The data detail each victim's accident and his or her resulting injuries and losses. They also detail the compensation each claimant obtained from auto insurance. We combined data from several sources to estimate insurers' transaction costs,¹⁹ including both allocated loss-adjustment expenses—costs, primarily legal fees and related expenses, incurred on behalf of and directly attributed to a specific claim—and unallocated, or general claim-processing costs, for each line of private-passenger auto insurance.²⁰

Claimants with low policy limits claim lower economic losses than claimants with high policy limits. For example, the average value of economic losses claimed by victims against drivers who had \$100,000 policy limits was about \$8,000, while claims against drivers with \$500,000 policy limits averaged about \$13,000. Most of the difference lies in the upper tail of the distribution of claims: Accident victims more frequently claim very large economic losses in pursuing a claim against a high-limit policy. A possible

¹⁶\$15,000 is the legal requirement in California. Not surprisingly, it is the most common limit purchased by California drivers. While many drivers have limits above \$15,000, few purchase limits above \$100,000.

¹⁷Insurance Research Council (1994) provides a detailed description of the data.

¹⁸The data were collected by 61 insurance companies that together accounted for about 70 percent of private-passenger automobile insurance by premium volume at the time the data were collected.

¹⁹Carroll et al. (1991), Appendix D, describes the data and methods used to estimate insurers' transaction costs.

²⁰We do not include claimants' legal costs, the value of claimants' time, or the costs the courts incur in handling litigated claims. Those costs do not affect insurers' costs and hence do not affect auto-insurance premiums.

explanation for this phenomenon is that when an accident victim's economic losses near a policy's limits, neither the victim nor the insurer has a strong incentive to report or record additional losses.

We adjusted for this phenomenon by estimating a simple model that related claimed losses to policy limits. We then used the model to scale up economic loss claims when the reported economic losses were close to the policy limit. This adjustment did not affect our estimates of the effects of the \$50,000 version of the proposed plan on compensation costs. Our estimates of the savings that would be provided by the \$1,000,000 version of the proposed plan are about three percentage points lower than they would have been without the adjustment. This procedure biases the results against the no-fault proposal.

We estimated the effects of the Alliance's proposal on insurance costs by comparing the costs of compensating the accident victims in the sample under the current insurance system to the costs of compensating the same victims, for the same injuries and losses, under the proposal. We included all accident victims—insured and uninsured drivers, passengers, pedestrians, bicyclists, people injured in single-car accidents, etc.—in these calculations.

We assumed the proportions of drivers who will purchase each available type of auto insurance personal injury coverage and, by implication, the proportion of drivers who will go uninsured, under California's current system. Given these assumptions, we computed the probability that an accident victim will have access to compensation under each coverage, multiplied by the average compensation paid California accident victims under that coverage, and summed over all coverages to estimate insurers' expected compensation costs under the current system. We then estimated a "break-even premium" for the current system—the amount insurers would have to charge the average insured driver to just recover what they paid out in compensating victims and the transaction costs they incurred in providing that compensation.

We similarly assumed the proportion of drivers who will purchase the mandated PIP coverage under the Alliance's plan and, by implication, the proportion of drivers who will go uninsured. We computed insurers' expected compensation costs, given those assumptions, and estimated the break-even premium under the proposal—the amounts insurers would have to charge insured drivers to just recover compensation costs.

Finally, we calculated relative savings under the proposal as the percentage difference between the break-even premium under the current system and the one under the proposal.

We focused on the effects of the proposed plan on auto insurers' compensation costs, including both the amounts they pay out in compensation and the transaction costs they incur in providing that compensation. We neglected the many other factors (e.g., insurers' overhead and profit margins and investment income) that also determine insurance premiums.

We focused on the relative costs of the two insurance systems. Because any factors that proportionately affect costs under both the current system and the proposal plan net out in the comparison, the results are insensitive to changes in such factors over time. However, because our results address relative costs, they do not address whether auto insurance costs will rise or fall if California adopts the proposal. Rather, they show the difference between what will happen if the current system is retained and what would occur if the proposal were adopted instead.

REFERENCES

Abrahamse, Allan, and Stephen Carroll, *The Effects of a Choice Auto Insurance Plan on Insurance Costs*, Santa Monica, Calif.: RAND, MR-540-ICJ, 1995.

Carroll, Stephen, and Allan Abrahamse, *The Effects of a Proposed No-Fault Plan on the Costs of Auto Insurance in California*, Santa Monica, Calif.: RAND, IP-146, March 1995.

Carroll, Stephen, Allan Abrahamse, and Mary Vaiana, *The Costs of Excess Medical Claims for Automobile Personal Injuries*, Santa Monica, Calif.: RAND, DB-139-ICJ, 1995.

Carroll, Stephen, et al., *No-Fault Approaches to Compensating People Injured in Auto Accidents*, Santa Monica, Calif.: RAND, R-4019-ICJ, 1991.

Coalition for Common Sense, *Draft Auto Insurance Initiative Measure*, Los Angeles, Calif., November 1, 1994.

Insurance Research Council, *Auto Injuries: Claiming Behavior and Its Impact on Insurance Costs*, Oak Brook, Ill., September 1994.

Maril, Robert L., *The Impact of Mandatory Auto Insurance Upon Low Income Residents of Maricopa County, Arizona*, Oklahoma State University, Stillwater, Okla., unpublished manuscript.

National Association of Independent Insurers, *Private Passenger Automobile Experience*, Des Plaines, Ill., 1994.

National Association of Insurance Commissioners, *State Average Expenditures & Premiums for Personal Automobile Insurance in 1993*, Kansas City, Mo., January 1995.



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DEPARTMENT**

March 21, 1996

Title: The Effects of a Proposed No-Fault Plan on the Costs of Auto Insurance in California: An Updated Analysis

Authors: Stephen Carroll and Allan Abrahamse

Please note that there is an error on page 5. The second sentence of the third paragraph under the heading WHY THE 1992 RESULTS DIFFER FROM THE 1987 RESULTS should read:

"The accident victims in our 1992 database claimed economic losses that were much greater, on average, than the losses claimed by the accident victims in our 1987 database."

We apologize for any confusion